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Regional Cardiac Needs - Africa: How to Heal the Global South

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Editorial

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ABSTRACT

Background: The current population of Africa of 1.4 billion will double by 2050. Similarly the pediatric (43%: 387,6 million, < 15 yrs old) as the student age (< 25 years) population (60% : 884 million) will double. About 1- 4% of babies are born with congenital heart disease and 1-30% are susceptible to develop preventable rheumatic heart disease caused by streptococcal throat infection associated with rheumatic fever. Only 2% (0.5-3.4%) of children with heart diseases have access to heart surgery. Open heart surgery per million population in sub-Saharan Africa is 5/million as compared to 116/ million in South America, WHO recommends 400 OHS/million which is currently impossible in Africa even the 40 OHS/million suggested by PASCATS remains unmet.

Table 1. Burden of Congenital and Rheumatic Heart Surgery in Africa¹

Cong. Heart Disease	Rheumatic Heart Disease
1.4 million babies born worldwide with CHD (335,000 in SSA)	40.5 million prevalent cases worldwide in all age groups
>25% require surgery 48% will die in infancy	817,000 in SSA require surgery
Only 7% have access to surgery	305,000 deaths worldwide/year
(2% (0.5-3.4%) SSA)	Only 1% have access to surgery. in SSA
70-80% Surgical load in SSA	10-30% v. repair
	20-30% surgical load in SSA

SSA: Sub-Saharan Africa

PASCATS Studies: Cardiac Surgery Capacity in Africa 2022
Heart Centres in Africa n= 213 Population: 1.4 bn
Disparities/Regional Differences

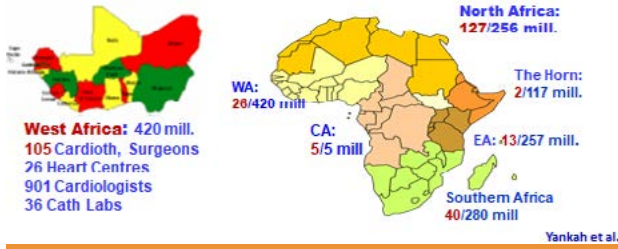


Fig. 1: Cardiac Surgery Capacity in Africa 2021²

How to Heal the Global South?
The Regional Global Needs-Africa

Education, Science & Technology
 Transfer of Knowledge and Know-How/Skill Set
 Change of Behavior (Mindset)
 Innovative Low Cost „Budget“ Surgery

Hospital Partnership „Sandwich Programs“
 Advocating Awareness & Prevention
 Preparedness & Response to Disease
 Financing National & Global Health

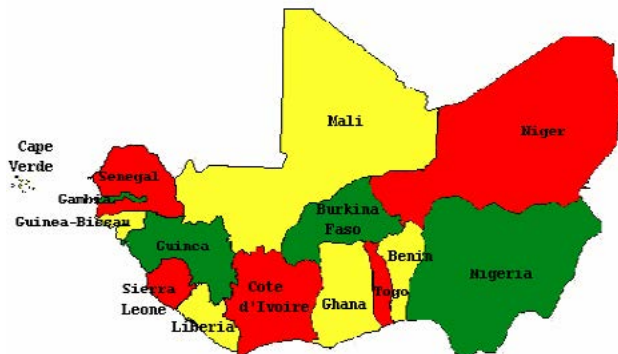
Universal Health Coverage (UNO, WHO, WHS): Leadership, Transparency, Good Governance, Zero Corruption

Fig. 2: The regional global needs - Africa³

Ischemic heart disease is on the rise so is the intermediate and high risk burn-out rheumatic heart valve disease in the fifth and sixth decades.

Table 2.

Table 3: Cardiac Surgery and Cardiology Capacity in West Africa: Population 420 million^{4,5}



- 105 Cardiothoracic Surgeons
- 901 Cardiologists
- 36 Cath Labs
- 17 Heart Centres

Cardiac Surgery Capacity & Performance in Sub-Saharan Africa & South America 2021

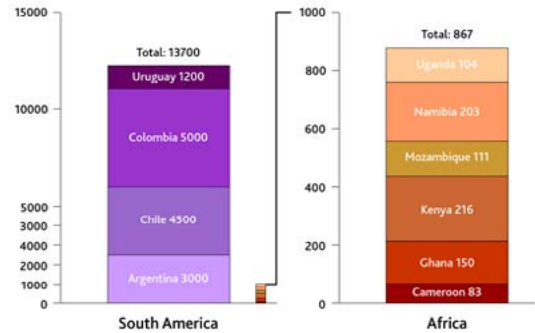


Fig. 3

Table 4.⁶

Cardiac Surgery Capacity & Performance in Africa & South America 2021

Region	Heart Centres	Heart Surgeons	OHS/Mmillion People
AFRICA 6 Countries 193 million	1:12.1 million	1/4.5 million	5/million
S. America 4 countries 117 million	1:1.6 million	1/373,802	116/million

A slow progress in Africa as compared to PASCATS Studies in 2012: Cardiac surgeon/population: 1/14 million
 OHS/population: 2/1 million.

Sharing of knowledge, inspring, upskilling, innovation for “low budget” surgery and building networks for impactful healthcare of the underserved population.

The talented African clinicians and researchers will play a key role to impact on the surgical and cardiology services to improve the health system in the underserved regions. Therefore, Global Heart Care is providing a multidisciplinary platform to achieve these aims.

Global Heart Care (GHC) is a taskforce of PASCATS, taking a holistic approach aimed at promoting capacity building programs in **screening** (detection and diagnostic), **treatment** (surgery, interventional/non-invasive procedures) and **recovery** (critical care) to manage the devastating healthcare challenges. The programs provide 1. on-site hands-on clinical courses by our faculty and 2. scholarships for on-course clinical training to Africans at various heart centres.

Since 2018 PASCATS-GHC has facilitated training program collaborations with 13 physicians in West Africa (Ghana and Nigeria) and eight cardiac surgeons from Algeria, Angola, Ghana, Kenya, Namibia, Nigeria and Uganda undergoing **simulation, courses “Training the Trainers”** in Accra, Global Heart Care Hub, German Heart Center Charite Berlin and St. Raffael University Hospital, Milan and Leiden University Medical Centre. Eight board certified cardiologists have emerged from our program.

Our project and support have provided the trainees the opportunities to unfold and improve their skills and cultivate a broader knowledge for their clinical practices. The acquired clinical experience would inspire them to discover research opportunities in their field. Their scientific achievements would eventually impact their horizon for innovations in their profession. It will also establish a network and resource for global contacts for the young local heart team generations.

Fellowship Program 2025 “Training the Trainers”

We have recently (August 2024) developed a partnership with Albert Luthuli Hospital and Congenital Heart Centre in Durban, South Africa. The partnership is set to provide young African scholars with basic clinical experience an opportunity to pursue taught clinical and simulation skill training. The program will continue with other African centres of excellence as from 2025.

Partner Heart Centres in Africa: Magdi Yacoub Heart Foundation-Aswan Heart Centre, Lenmed Ethekewini Hospital, Albert Luthuli Central Hospital, & Heart Centre, Durban, University of KwaZulu-Natal, Durban

The GHC- PASCATS Scholarships aim to provide outstanding African clinicians the opportunity to undertake sandwich fellowship programs to upskill their clinical experience at high volume heart centres in Africa and abroad.

Their institutions provide the scholarship including flight and living costs without course fees. The scholarships provide hands-on, leadership and managerial training programs and networking opportunities.

What are we doing next: Providing opportunities for collaborative clinical research

Developing Clinical and Academic Networks

The GHC Fellowship Program is designed to provide exceptional young African cardiologists and surgeons an opportunity to develop skills in pediatric and adult cardiology and cardiac surgery.

Our programs are developed to enable young physicians to co-design research projects and co-develop skills to tackle African medical challenges across the “Sustainable Development Goals”.

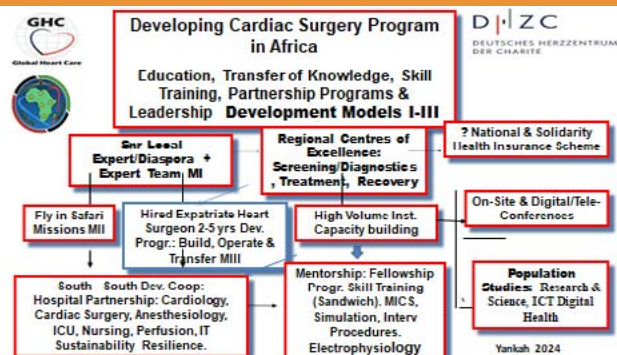
Developing clinical and academic networks, innovations to tackle health challenges, inspiring and motivating future cardiothoracic surgeons of Africa.

The Fellowship program is organized to enable clinicians to spend up to 12 weeks at the host heart centre.

Future Collaborations with Emerging Centres of Excellence

It is aimed at supporting new collaborations between clinicians and researchers in African heart centres. The program is open to clinicians in the field of pediatric cardiology, cardiac surgery, critical care management and cardiovascular nursing and perfusion . It will allow clinicians to work together on clinical routine programs and research area of mutual interest.

Table. 5: Developing Cardiac Surgery Hospital Partnership Programs in Africa



Supporting Worldclass Training for African CT Residents

GHC is working with international heart centres and scholarship committees across the globe to maximize opportunities available to prospective African applicants (residents and medical students). We are taking a holistic approach aimed at increasing the capacity in pediatric cardiology and surgery, improving pediatric cardiology services and health system by organizing supporting scholarships access for on- clinical course support to African fellows at African and external heart centres.

Fig. 4: Teaching of Cardiac Surgery in Africa: Learning Of Complex Surgical-Skills. Surgical simulation to supplement OR teaching to acquire competency



Innovations to Tackle Cardiovascular Health Challenges

The GHC Innovation Platform (GHC-IP) is a multi-disciplinary program to support African innovators develop new solutions to Africa's health challenges. It does so by connecting clinical research to industry to tackle prevention, early diagnosis, and treatment through impact investment and innovation. GHC-IP collaborative platform supported by key clinicians at European and African institutions, and led by GHC.

Discussions, Events & Networking

Our platform convenes fellows, researchers, Universities and guests from around the world to share ideas and knowledge about Africa-focused clinical care and research.

We will also support high quality events (webinars, simulation courses, leadership seminars) at international heart centres and our partner institutions in African countries to highlight the latest Africa-related clinical work, research and challenges.

Inferences

At the end of the training programs and during surgical practice, it is the performance and results that are decisive.

Knowledge: complete and on demand at anytime

Know-how: ready for challenges in daily clinical work

Competence / Professionality: practical, confident and up-to-date

Measure of success/impact measurement: evaluate performance, failures for improvement, feedback, collegial and sharing practical experiences.

Conclusions

There is a need for south-south development cooperation to teach and promote surgery of complex surgical procedures, interventional minimally invasive procedures and off pump CABG surgery to enhance sub-regional cardiovascular healthcare services.

African heart centres should promote sub-regional joint procurement alliance (Consortium) to reduce expenditure and enable low budget cardiac procedures that would promote an increase in case volume surgical load.

The goal is to promote sustainable high case volume cardiac programs to improve patient care and surgical skills of the heart team in SSA.

Finally, a consortium for low cost procurement

in cardiac surgery in Africa will benefit the underserved patients who will gain more access to affordable cardiac surgery and interventional procedures and improve the health system.

Invitation

It is our great pleasure to announce and to invite you to attend the First Pan-African Cardiothoracic Surgery (PACaTS) Summit 2025: Charting the Course of AI in CV Healthcare

Date: Saturday - Monday, 22nd - 24th February 2025

Venue: Ghana College of Physicians and Surgeons (GCPS), Jomo Kenyatta Road, Ridge, Accra, Ghana. GA-052-3865

Hon. President: Prof. Sir Magdi Yacoub, Aswan Heart Centre, Egypt
Summit President: Dr. Prof. Joanna Chikwe, Professor of Cardiac Surgery, Chair, Smidt Heart Institute, Cedars Sinai Medical Center, Los Angeles.

Register now. www.pascats.com

info@pascats.com

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